

ABSTRACT

A method for enhancing the stability of a solids-stabilized water-in-oil emulsion by pretreating the oil prior to emulsification. The pretreatment step can be accomplished by adding dilute acid to the oil, adding a lignosulfonate additive to the oil, sulfonating the oil, thermally oxidizing the oil, thermally treating the oil in an inert environment, and combinations thereof. The emulsion can be used in enhanced oil recovery methods, including using the emulsion as a drive fluid to displace hydrocarbons in a subterranean formation, and using the emulsion as a barrier fluid for diverting flow of fluids in the formation.

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